

3GPP TR 36.838 V0.0.1 (2013-06)

Technical Report

3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); LTE-Advanced Intra-band Contiguous Carrier Aggregation (CA) in Band 27 (Release 12)



The present document has been developed within the 3rd Generation Partnership Project (3GPP™) and may be further elaborated for the purposes of 3GPP. The present document has not been subject to any approval process by the 3GPP Organizational Partners and shall not be implemented. This Report is provided for future development work within 3GPP only. The Organizational Partners accept no liability for any use of this Specification. Specifications and Reports for implementation of the 3GPP™ system should be obtained via the 3GPP Organizational Partners' Publications Offices.

Keywords

<LTE, RF, CA>

3GPP

Postal address

3GPP support office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet

<http://www.3gpp.org>

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© 2011, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TTA, TTC).
All rights reserved.

UMTS™ is a Trade Mark of ETSI registered for the benefit of its members
3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners
LTE™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners
GSM® and the GSM logo are registered and owned by the GSM Association

Contents

Foreword	4
Introduction	Error! Bookmark not defined.
1 Scope	5
2 References.....	5
3 Definitions, symbols and abbreviations	5
3.1 Definitions	5
3.2 Symbols.....	5
3.3 Abbreviations.....	5
4 Examples for Styles.....	5
4.1 Heading Styles	6
4.2 Other common styles	Error! Book mark not defined.
"TSG <Name>" on the front page	Error! Bookmark not defined.
Page setup parameters.....	Error! Bookmark not defined.
Proforma copyright release text block	Error! Bookmark not defined.
Abstract Test Suite (ATS) text block.....	Error! Bookmark not defined.
<x1> The TTCN Graphical form (TTCN.GR).....	Error! Bookmark not defined.
<x2> The TTCN Machine Processable form (TTCN.MP).....	Error! Bookmark not defined.
Annex <A>: <Annex title>	Error! Bookmark not defined.
A.1 Heading levels in an annex	Error! Bookmark not defined.
Annex <X>: Change history	Error! Bookmark not defined.

Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document is a technical report of the work item for LTE Advanced Contiguous Carrier Aggregation in Band 27 which was initially approved at TSG RAN #58 [2]. A revised WID was approved at TSG RAN #59 [3]. The report provides background, analysis of the requirements, and a list of recommended changes to the specifications.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] RP-122020, New WI proposal: LTE Advanced intra-band contiguous Carrier Aggregation for Band 27, NII Holdings
- [3] RP-130173, Revised WID: LTE Advanced intra-band contiguous Carrier Aggregation in Band 27, NII Holdings

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [x] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [x].

3.2 Symbols

For the purposes of the present document, the following symbols apply:

<symbol> <Explanation>

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [x] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [x].

4 Background

Band 27 is a new FDD LTE band covering 807-824/852-869 MHz. This spectrum has previously been allocated in Region 2, and in some countries in Region 3. Because some legacy spectrum allocations in the band are greater than 5

MHz but not integer multiples of 5 MHz, some operators are interested in Class B carrier aggregation to enable them to more efficiently utilize their spectrum.

Building on the generic intra-band carrier aggregation work of Band 1, this work item proposes to start the work on intra-band contiguous carrier aggregation for Band 27 to support deployment of LTE-advanced. However, this is the first Class B carrier aggregation work item, so the generic Class B issues need to be worked.

4.1 Task Descriptions

This WI is to specify the band specific core and performance requirements for contiguous intra-band carrier aggregation in band 27:

- 1) Specifying the core requirements for BS and UE in RAN4 specifications, and taking the coexistence with nearby Band 5 and Band 28 into account.
- 2) Specify band specific RRM requirements in RAN4 if any.
- 3) Signalling support in RAN2 specifications if any.
- 4) Performance requirements for BS and UE in RAN4 specifications.

4.2 Spectrum and regulatory review

This Work Item is based on the spectrum arrangement as shown in Table 4.2-1.

Table 4.2-1 Frequency arrangements in the band 2 500-2 690 MHz

Frequency arrangement	Mobile station transmitter (MHz)	Centre gap (MHz)	Base station transmitter (MHz)	Duplex separation (MHz)	Centre gap usage
C1	807-824	28	852-869	45	FDD UL and guard

The frequency band 807-824 MHz is paired with 852-869 MHz for FDD operation where the mobile terminals transmit within the lower band and the base stations transmit within the upper band. These paired spectrum blocks are designated as Band 27 in 3GPP E-UTRA specifications. The spectrum 824-849 is designated for the 3GPP Band 5/V uplink.

Band 27 is anticipated to be a major FDD band which has been allocated in Region 2 and parts of Region 3.

5 Band and Channel Arrangements

5.1 CA operating bands

5.2 CA channel bandwidth

6 E-UTRA RF requirements for UE

6.1 Transmitter Characteristics

6.2 Receiver Characteristics

6.3 E-UTRA B27 coexistence requirements

7 E-UTRA RRM requirements for UE

8 E-UTRA RF requirements for BS

8.1 Transmitter characteristics

8.2 Receiver Characteristics

9 E-UTRA demodulation performance for BS and UE

10 Summary of required changes to E-UTRA specifications

10.1 Required changes to TS36.101

10.2 Required changes to TS36.104

10.3 Required changes to TS36.133

10.4 Required changes to TS36.141

10.5 Required changes to TS36.307

10.6 Required changes to TS37.104

10.7 Required changes to TS37.141

11 Project Plan

11.1 Schedule and Work Task Status

Annex A:

Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2013-06					Skeleton		0.0.1